Kentucky Method 64-618-02
Revised 12/16/02
Supersedes KM 64-618-01
Dated 2/16/01

# METALLIC IRON CONTENT IN SLAG

1. SCOPE: This method covers the determination of particles (by mass) containing iron in blast furnace slag or similar products.

2. APPARATUS:

   2.1. Magnet: A magnet with a manufacturer's rating of approximately 50 lbs.

   2.2. Sample Splitter

   2.3. Balance: A balance having a capacity of at least 5000 grams, sensitive to one gram.

   2.4. Oven: An oven capable of maintaining a temperature of approximately 230±9°F.

   2.5. Drying pans

3. SAMPLE:

   3.1. Field samples shall be obtained in accordance with AASHTO T 2.

   3.2. Obtain the test portion by means of a sample splitter, by quartering or by the miniature stockpile procedure, as applicable, and in accordance with AASHTO T 248. A representative quantity of sample to be tested shall be in accordance with the following table:

| Nominal Maximum Sieve Size | Approx. Weight of Test Portion |
|---|---|
| 3/8 inch or Less | 1500 - 2000 grams |
| 1/2 inch to 1 inch | 2500 - 3500 grams |
| Greater than 1inch | 5000 - 7000 grams |

   3.3. Dry the test portion to constant mass in the oven at approximately 230±9°F.

   3.4. Cool the test portion to room temperature.

   3.5. Weigh the test portion and record the mass to the nearest 1.0 gram as $W_1$.

4. PROCEDURE:

   4.1. Spread the test portion out on a table or other work area so that all aggregate particles are touching the table surface and are exposed to the magnet when passed over the surface of the layer of aggregate.

   4.2. Pass the magnet over the aggregate layer touching as many particles as possible. Remove all particles collected by the magnet and place them in a separate pile.

4.3. Remix the remaining test portion and repeat steps 4.1 and 4.2. Repeat this procedure until the mass of the particles collected on a given pass of the magnet is less than 0.1 percent of the original mass of the test portion.

4.4. Weigh all the particles collected by the magnet and record this mass as $W_2$.

5. CALCULATIONS:

$$Percent\ Metallic\ Iron\ Materials = \frac{W_2}{W_1} \times 100$$

Where: $W_1$ = Mass of total test portion

$W_2$ = Mass of material removed by magnet

6. REPORT:

6.1. Report the percent metallic iron particles to the nearest whole percent.

6.2. When test results are obtained that do not fall within specification limits, the failure must be verified. The unused field sample is to be tested in the same manner as the original test sample. When the original and the verification test results are reasonably close, they are to be averaged to obtain a single reportable test result. When the two test results vary considerably further investigation will be necessary. Investigation may include checking test equipment, reducing field sample to test sample practices, methods of calculations and/or obtaining an additional field sample to test.

APPROVED _____
Director
DIVISION OF MATERIALS

DATE _____12/16/02_____

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